Trends in Psychotropic Medication Use among Medicaid-Enrolled Preschoolers

Danielle Hiance M.S.W.,[1] Cynthia A. Fontanella Ph.D.,[1,4] Gary Phillips M.A.S.,[2] Jeffrey A. Bridge Ph.D.,[3] John V. Campo M.D.[4]

Abstract

Objective: To examine trends and predictors of psychotropic medication use among preschoolers in Ohio Medicaid across a 7-year time span.

Methods: A longitudinal retrospective analysis of Medicaid claims data was conducted to examine trends in psychotropic medication use among preschool children over the 7 year period from 2002 to 2008. The study population included all children (aged 2 to 5 years) who were continuously enrolled in Ohio's Medicaid program for at least a 12 month period from July 1, 2001 through June 30, 2008 ((N = 559,275). Children were identified as users of psychotropic medications if they had at least one prescription claim during the study period (n = 23,019).

Results: The overall rate of psychotropic medication use per 1,000 children increased only slightly from 17 to 19 between 2002 and 2008. Significant increases in the use of stimulants, alpha-agonist medications, and especially antipsychotics, which more than doubled from 2 per 1,000 in 2002 to 5 per 1,000 in 2008, were balanced by significant decreases in the use of antidepressants and mood stabilizers. Of those treated with psychotropic medications, a little over a quarter (28.4%) had a mental health assessment, 23.7% had a visit with a psychiatrist, and 29.7% had a psychotherapy visit. Children who were older, white, male, disabled, and in foster care were more likely to receive psychotropic medications. The diagnoses most associated with psychotropic medication use were ADHD, bipolar disorder, and disruptive behavior disorders.

Conclusion: This data suggest growth in the proportion of preschoolers being treated with antipsychotics, stimulants and alpha agonists, primarily for behavioral disturbances and aggressive symptoms. Most preschool children prescribed psychotropic medication do not receive the psychosocial services recommended by current treatment guidelines.

Background

- Increased use of psychotropic drugs in young children
  - 1.7-3.1 fold increase in stimulants, 1991-1995
  - 50% of children < 6 yrs. with autism prescribed medications, 2001
  - Rate of antipsychotics use more than doubled from 1999 to 2007
- Indications for medication
  - After a trial of psychosocial treatment
  - Moderate to severe symptoms and functional impairment
  - High risk of injury to self or others
- Concerns and Issues
  - Lack of data on effectiveness, safety, or dosing of drugs
  - Effects on developing brain unknown
  - Little knowledge of dosing, tolerability, or drug interactions
  - Validity and reliability of many diagnoses not confirmed
- Gaps in Research
  - Recent trend in prescribing to preschoolers
  - The context in which prescribing occurs
  - Factors that affect prescribing decisions

Objectives

- To examine trends in psychotropic medication use and mental health service use patterns for Medicaid-enrolled preschoolers.
- To identify demographic, diagnostic, and service use factors associated with psychotropic medication use.

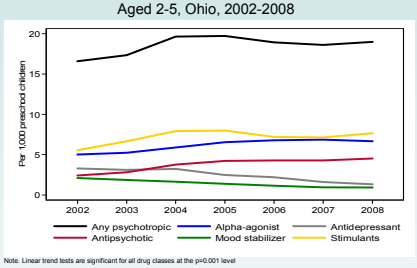
[1] College of Social Work, Ohio State University
[2] Center for Biostatistics, The Ohio State University, Columbus, OH
[3] Department of Pediatrics, Ohio State University and Research Institute at Nationwide Children's Hospital
[4] Department of Psychiatry, College of Medicine, Ohio State University

Methods

- **Design**
  - Serial, cross-sectional study
- **Data Source**
  - Ohio Medicaid claims files
    - Prescription drug, inpatient, outpatient, eligibility/enrollment
- **Study Population**
  - *Inclusion Criteria:*
    - Children aged 2 to 5 years
    - Full-year Medicaid eligibility
    - Time period: July 1, 2001-June 30, 2008
  - *Entire Population*:
    - N = 559,275
  - *Analytic Sample:*
    - Children prescribed ≥ 1 psychotropic med during the study period (n = 23,019)
- **Measures**
  - **Psychotropic Medication Use**
    - *Definition*: ≥ 1 psychotropic medication at any time during the year
    - *6 major drug classes*
      - Antidepressants
      - Antipsychotics
      - Mood stabilizers
      - Stimulants
      - Alpha-agonists
      - Anxiolytics
  - *Exclusions*
    - Anticonvulsants meds with epilepsy
    - Alpha-agonists with hypertension
- **Predictor Variables**
  - *Demographic Factors*
    - Age, race/ethnicity, sex, area of residence, Medicaid eligibility
  - *Clinical Factors*
    - Primary psychiatric diagnosis
      - ICD-9-CM codes: 290-319
    - Number of psychiatric disorders
    - Comorbid medical conditions
      - 12 chronic pediatric conditions
  - *Mental Health Service Use*
    - Outpatient services
    - Inpatient psychiatric
- **Statistical Methods**
  - Generalized estimated equation (GEE) logistic regression model of psychotropic medication use

Results

Patterns of psychotropic Medication use Among Medicaid-Enrolled Preschoolers Aged 2-5, Ohio, 2002-2008



Note. Linear trend tests are significant for all drug classes at the p<0.001 level

Patterns of Mental Health Service Use for Preschoolers Treated with Psychotropic Medication, Ohio Medicaid, 2002-2008

	2002		2008		Linear trend test, *p*
	N	%	*N*	%	
Any mental health service	1,448	62.09	2,610	73.40	< .001
Outpatient services	1,447	62.05	2,609	73.37	< .001
Specialty[a]	910	39.02	1,458	41.00	.013
MH assessment	587	25.17	1,009	28.37	< .001
Psychiatrist visit	597	25.60	843	23.71	.752
Psychotherapy	621	26.63	1,056	29.70	.024
Non-specialty[b]	1,131	48.50	2,255	63.41	< .001
Inpatient psychiatric services	44	1.89	63	1.77	.614

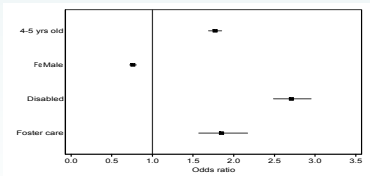
Note. Linear trend tests based on all 7years of data.
[a]Specialty services include outpatient services in the community mental health system and services provided by a mental health specialist such as psychiatrist, social worker, or psychologist. [b]Non-specialty services include evaluation and management visits by a primary care physician, pediatrician or nurse practitioner.

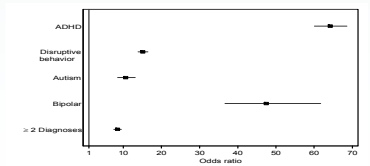
Demographic and Clinical Characteristics of Preschoolers Treated with Psychotropic Medication, Ohio Medicaid, 2002-2008

	2002		2008		Linear trend test, *p*
	N	%	*N*	%	
Total on medication	2,332		3,556		
Demographics					
Age group, y					
2-3	554	23.76	775	21.79	.024
4-5	1,778	76.24	2,781	78.21	
Male	1,572	67.41	2,432	68.39	.032
Race					
White	1,843	79.03	2,798	78.68	.114
Non-white[a]	489	20.97	758	21.32	
Eligibility category					
Poverty	1,925	82.55	3,057	85.97	.143
Disabled	337	14.45	426	11.98	.737
Foster care	70	3.00	73	2.05	.010
Clinical					
Primary mental health diagnosis					
None	592	25.39	749	21.06	< .001
Depression	11	0.47	5	0.14	.017
Bipolar	17	0.73	56	1.57	< .001
Schizophrenia or psychosis[b]	1	0.04	2	0.06	--
Autism	29	1.24	82	2.31	< .001
Anxiety	36	1.54	69	1.94	.029
Adjustment	132	5.66	162	4.56	.538
ADHD	564	24.19	1,167	32.82	< .001
Disruptive behavior	230	9.86	445	12.51	< .001
Communication and learning	76	3.26	322	9.06	< .001
Mental retardation	481	20.63	110	3.09	< .001
Other disorder[c]	163	6.99	387	10.88	< .001
Number of diagnoses					
0	592	25.39	749	21.06	< .001
1	1,094	46.91	1,873	52.67	< .001
≥ 2	646	27.70	934	26.27	.001

Note. Linear trend tests based on all 7 years of data.
[a]Non-white includes African American (94%), the remainder were Hispanic, Asian, and Pacific Islander. [b]No results due to small cell sizes. [c]Includes all diagnoses with ICD-9-CM codes 290-319 not listed above.

Estimated Odds Ratios and 99% Confidence Intervals of Psychotropic Medication for Selected Demographic and Clinical Characteristics





Note. Results are based on GEE from logistic regression model predicting psychotropic medication use. The model included the following variables: age, race, ethnicity, gender, area of residence (rural/urban), Medicaid eligibility category, primary psychiatric diagnosis, number of psychiatric disorders, any medical comorbidities, any MH assessment, psychiatrists visits, any psychotherapy, any partial hospitalizations, any inpatient. Reference categories: age: 2-3 years old; Medicaid eligibility category: poverty; ≥ 2 psychiatric diagnoses: 0-1 diagnoses.

Summary of Findings

- **Trends in Psychotropic Use**
  - Rates of medication use remained stable between 2002 and 20
    - Stimulants, alpha-agonists, anxiolytics, antipsychotics most common
    - Most drugs prescribed by primary care doctors
  - *Increased* use of:
    - Antipsychotics,
    - Stimulants,
    - Alpha-agonists
  - *Decreased* use of :
    - Antidepressants
    - Mood stabilizers
  - Rates of antipsychotic use more than doubled
    - Most prescribed risperidone
    - Most were diagnosed with behavior disorders
  - Key findings from the multivariate analysis:
    - ↑ medication use for older, white, male, disabled, and in fost care
    - ↑ medication use for those diagnosed with ADHD, bipolar, disruptive behavior, and autism
- **Trends in Mental Health Service Use**
  - Most children treated with medications did not receive a mental health assessment, a psychiatry visit, or psychotherapy

Strengths and Limitations

Strengths

- Population data
- Examination of prescribing trends
- Examination of context of medication prescribing:
  - Type of prescribing provider
    - Specialty vs. Non-specialty
  - Mental health service use

Limitations

- Generalizability
  - Other state programs
  - Non-Medicaid populations
- Claims data lack information on:
  - Physician characteristics
  - Patient attitudes about meds
  - Family factors
  - Level of functional impairment
- Pharmacy claims do not measure actual consumption of meds

Conclusions and Implications

- Increases in the use of psychotropic medications have occurred despite diagnostic challenges, the relative lack of safety and efficacy of these drug and concerns about their effects on developing brains of young children.
- Clinicians need to be aware of the current treatment recommendations an availability of non-pharmacological interventions and carefully weigh the ri and benefits of psychotropic medication in young children.
- Efforts to improve access to non-pharmacological mental health services, psychoeducation for patients and families, and decision support for provid the general medical setting are warranted.
- Social workers need to be aware of treatment options and availability of services to connect preschool aged children and families to the appropriat resources.